depends include the camera field of view, lens optical magnification, the optical depth of focus, the surface color of the part modeled, the surface texture of the part modeled, the number of light sources, and the intensity, direction, illumination structure and color of the light sources.

Please replace the paragraph beginning at line 10 of page 6 as shown.

In the case of a vision measurement system, the image produced is a conventional visual image of the part, which can be displayed to an operator 105, if desired. The image is analyzed 106, and if found to be satisfactory, then the parameters under which that image was produced are stored 107 as correct for the particular desired measurement. If the image analysis finds the image to be unsatisfactory, then the parameters of the simulated measurement system are adjusted 108 and a new image produced. The process of producing images and adjusting the parameters continues until a satisfactory image is produced. The image analysis portion of this process may be fully automated, based upon an objective criterion, such as satisfactory edge detection, etc., or may require operator feedback based upon a displayed image of the model of the part.

REMARKS

This is a preliminary amendment amending the specification to make the specification consonant with the drawings. Entry hereof is respectfully requested.

If there is a fee occasioned by this amendment, including an extension of time fee, that is not covered by an enclosed check, please charge any deficiency to deposit account No. 23/2825.

Respectfully submitted
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Docket No. B1034/7003
Date: January 28, 2002

MARKED-UP SPECIFICATION

Please rewrite the paragraph beginning at line 1 of page 5 as shown.

First, the simulated measurement system is loaded and executed by a suitable computer system 101. The simulated measurement system includes both conventional measurement software, that is, software normally used by a real measurement system, and software which simulates the measurement frame hardware of a real measurement system. This special software simulation capability is integrated into Xact Measure and Xact Vision metrology software from Brown & Sharpe Information Systems, Inc. The portions of Xact Measure and Xact Vision that provide the simulation capability could alternately be integrated with correctional measurement software PC-DMIS from Brown & Sharpe, Inc. and Quadra-Check from Metronics, Inc. Simulation of the measurement frame hardware is performed by a layer of software referred to as a virtual measuring instrument (VMI). The VMI may be implemented as a device driver in a Microsoft Windows environment. Operation of the VMI is discussed in further detail, below.

Please rewrite the paragraph beginning at line 13 of page 5 as shown.

Next, a model of a part to be measured is loaded into the simulated measurement system 102. The illustrative embodiment supports a variety of CAD file formats in which the model may be represented, including, but not limited to, DWG, DXF, SAT, IGES, VDA/FS, STEP, CATIA, UG, Parasolids, Pro/E, IDEAS CAD, etc. formats corresponding to several popular CAD programs. The model should be a 3D model. If the measurement frame simulated by the VMI is a vision measurement system, for example employing a camera to capture information, the CAD model of the part should include fully modeled surfaces.

Please rewrite the paragraph beginning at line 28 of page 5 as shown.

Parameters within the VMI are adjusted to simulate a particular desired spatial relationship between the modeled part and the simulated measurement system 103. The spatial relationship may be fully specified, relative to a fixed datum established in the model, in terms of

x, y and z position, as well as α, β and γ rotations of the simulated measurement system, relative to the datum.

Please rewrite the paragraph beginning at line 3 of page 6 as shown.

An image of the modeled part is rendered 104, taking into account the spatial relationship established, as well as such other parameters as may be required. If a vision measurement system is being simulated by the VMI, then some of the parameters upon which the rendering depends include the camera field of view, lens optical magnification, the optical depth of focus, the surface color of the part modeled, the surface texture of the part modeled, the number of light sources, and the intensity, direction, illumination structure and color of the light sources.

Please rewrite the paragraph beginning at line 10 of page 6 as shown.

In the case of a vision measurement system, the image produced is a conventional visual image of the part, which can be displayed to an operator 105, if desired. The image is analyzed 106, and if found to be satisfactory, then the parameters under which that image was produced are stored 107 as correct for the particular desired measurement. If the image analysis finds the image to be unsatisfactory, then the parameters of the simulated measurement system are adjusted 108 and a new image produced. The process of producing images and adjusting the parameters continues until a satisfactory image is produced. The image analysis portion of this process may be fully automated, based upon an objective criterion, such as satisfactory edge detection, etc., or may require operator feedback based upon a displayed image of the model of the part.